

RECEIVED
CENTRAL FAX CENTER

SEP 28 2006

REMARKS

Claims 1-15 are pending in the present Application. Claims 1, 4, and 14 are hereby amended. Applicant hereby responds to the rejections of the Claims set forth by the Examiner in the Action.

I. ALLOWED SUBJECT MATTER

On Page 5 of the *Action*, the Examiner indicated that Claim 15 is allowed. In response, Applicant respectfully requests an expeditious Notice of Allowance for at least Claim 15.

II. ALLOWABLE SUBJECT MATTER

On Page 5 of the *Action*, the Examiner indicated that Claims 4-8 and Claim 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In response, Applicant hereby rewrites Claim 4 to be in independent form, including all of the limitations of base Claim 1 and of intervening Claims 2 and 3. Thus, Claim 4 now is in allowable form. In addition, Claims 5-8 properly depend from allowable independent Claim 4 and also are allowable in their original form. In addition, Applicant hereby rewrites Claim 14 to be in independent form, including all of the limitations of base Claim 1 and of intervening Claims 9, 11, and 12. Thus, Claim 14 now is in allowable form.

Applicant respectfully requests an expeditious Notice of Allowance for Claims 4-8 and Claim 14, as well as for Claim 15.

III. REJECTIONS UNDER 35 U.S.C. 103(a) - OBVIOUSNESS

Claims 1-3 are rejected under 35 U.S.C. §103(a) as being unpatentable over Yanagi, et al. (U.S. Pat. No. 6,359,607) [*Yanagi*] in view of Kawaguchi, et al. (U.S. Pat. No. 6,118,421) [*Kawaguchi*]. Also, Claims 9-13 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Yanagi* and *Kawaguchi* in view of Cochran (U.S. Pat. No. 3,114,112) [*Cochran*]. Claims, 2, 3, and 9-13 depend from Claim 1.

With regard to Claim 1, the Examiner states:

As to Claim 1, Yanagi et al. teaches a liquid crystal display comprising: a liquid crystal panel including a gate line (Fig. 9, Reference Character G(M)), a data line (Fig. 9, Reference Character S(N)), and a pixel including a switching element connected to the gate line and the data line (Fig. 9, Reference Characters g(i,j), T(i,j) and P(i,j)); a gate driver applying a gate signal for controlling the switching element to the gate line (Fig. 9, Reference Number 300); and a data driver (Fig. 9, Reference Number 300), wherein the gate signal includes a gate-on voltage for turning on the switching element and a gate-off voltage for turning off the switching element and the gate-on voltage has at least two different levels (See Fig. 5, waveform VG(j) and Col. 10, lines 20-30, Col. 15, lines 45-50, Col. 16, line 56-Col. 17, line 4, Col. 17, lines 48-58 and Col. 18, lines 29-65). Yanagi et al. does not teach the data driver selecting gray voltages corresponding to gray signal and applying the selected gray voltages to the data line. Examiner cites Kawaguchi et al. to teach a data driver

LAW OFFICES OF
MACPHERSON KWOK
CHEN & FIED LLP

2402 Michelson Drive
SUITE 210
Irvine, CA 92613
(949) 752-7040
FAX (949) 752-7049

selecting gray voltages corresponding to gray signals and applying the selected gray voltages to the data line (Fig. 8A, Reference Numbers 104 and 102). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate a gray scale voltage generator as taught by Kawaguchi et al. in the liquid crystal display taught by Yanagi et al. in order to enhance picture quality. (Action, pp. 2-3)

In reply, Applicant amends Claim 1 to clarify a relationship between a level of a gate-on voltage and a gray. In support of the amendment of Claim 1, Applicant respectfully draws the attention of the Examiner to the following non-limiting exemplifications, found in the Specification (Specification) of the present Application, as filed:

The gray voltages include a plurality of pairs of a positive voltage (V+) and a negative voltage (V-) assigned to each gray and it is preferable that

$$\frac{V^+ + V^-}{2} = V_{const}$$

for each gray.

(Specification, p. 3, lines 6-8.)

Moreover, in another exemplification,

Referring to FIG. 3 again, the gray voltage generator 800 generates two sets of a plurality of gray voltages related to the transmittance of the pixels. The gray voltages in one set have a positive polarity with respect to the common voltage Vcom, while those in the other set have a negative polarity with respect to the common voltage Vcom. The positive gray voltage V⁺ and the negative gray voltage V⁻ for any gray satisfy a relation,

$$\frac{V^+ + V^-}{2} = V_{const} \dots$$

(Specification, p. 9, lines 6-12.)

Therefore, V_{const} has a level that corresponds to a gray. With respect to an illustrative gate-on voltage such as Von2, the Specification recites the example:

The low value Von2 of the gate-on voltage Von is preferably given by:

$$\frac{Von1 + V_{const}}{2} - \frac{Von1 + V_{const}}{2} \times 10\% \leq Von2 \leq \frac{Von1 + V_{const}}{2} + \frac{Von1 + V_{const}}{2} \times 10\%.$$

(Specification, p. 9, lines 18-20.)

Thus, because V_{const} has a level that corresponds to a gray and, in turn, Von2 has a level that corresponds to a level of V_{const}, then Von2 represents at least one of at least two different levels of a gate-on voltage that corresponds to a gray, as is claimed by Applicant in pertinent part, in amended Claim 1.

Applicant asserts that neither Yanagi nor Kawaguchi, alone or in combination, teach or suggest a liquid crystal display comprising a gate driver applying a gate signal for controlling the switching element to the gate line wherein the gate signal includes a gate-on voltage for turning on the switching

LAW OFFICES OF
MACPHERSON KWOK
CHEN & HEED LLP

2400 Michelson Drive
SUITE 210
Irvine, CA 92612
(949) 753-7040
FAX (949) 753-7049

element and a gate-off voltage for turning off the switching element, wherein the gate-on voltage has at least two different levels, and wherein at least one of the at least two different levels of a gate-on voltage corresponds to a gray, as recited in pertinent part, by Applicant's amended Claim 1.

Similarly, *Cochran* does not teach or suggest a liquid crystal display comprising a gate driver applying a gate signal for controlling the switching element to the gate line wherein the gate signal includes a gate-on voltage for turning on the switching element and a gate-off voltage for turning off the switching element, wherein the gate-on voltage has at least two different levels, and wherein at least one of the at least two different levels of a gate-on voltage corresponds to a gray, as recited in pertinent part, by Applicant's amended Claim 1.

For one or more references to stand as valid reference(s) under 35 U.S.C. §103(a), it is required that the prior art reference (or references when combined) teach or suggest each and every one of the claim limitations. Because neither *Yanagi* nor *Kawaguchi*, alone or in combination, teach or suggest each and every one of the limitations recited in Applicants' amended Claim 1, the statutory requirements for a prima facie case of obviousness supporting the rejection of Claim 1 under 35 U.S.C. §103(a) are not met. Likewise, *Corcoran* does not remedy the aforementioned deficits of *Yanagi* and *Kawaguchi* in the underlying prima facie obviousness case asserted against Claim 1, and no combination of *Yanagi* or *Kawaguchi* with *Corcoran* provides sufficient statutory support to the sustain the prima facie obviousness rejections of Claims 9-13.

Therefore, Applicant respectfully submits that amended Claim 1 is nonobvious and patentable over *Yanagi* in view of *Kawaguchi*. In addition, because Claims 2 and 3 properly depend from Claim 1, each of Claims 2 and 3 also are nonobvious and patentable over *Yanagi* in view of *Kawaguchi*. Moreover, Applicant respectfully submits that Claims 9-13, which properly depend from amended Claim 1, are nonobvious and patentable over *Yanagi* and *Kawaguchi* in view of *Corcoran*.

Accordingly, Applicant respectfully requests that each of the obviousness rejections under 35 U.S.C. §103(a) of Claims 1-3 and 9-13 be reconsidered and withdrawn.

IV. CONCLUSION

By this Response, Applicant believes that a full and complete response has been made to the pending Office Action objections and rejections, and respectfully submits that all of the stated grounds for rejection have been overcome or rendered moot.

No new matter has been added by the amendment made to the Claims of the present Application. No additional search is indicated or warranted.

Therefore, an expeditious examination of the claimed subject matter relative to prior art is requested, as is reconsideration and withdrawal of the stated rejections. A timely Notice of Allowance for all Claims is kindly solicited.

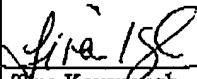
LAW OFFICES OF
MACPHERSON KWOK
CHEN & REID LLP

2402 Michelson Drive
SUITE 210
Irvine, CA 92612
(949) 752-7040
FAX (949) 752-7049

If there are any questions regarding any aspect of the present Application or the Amendment made thereto, please call the undersigned at (949) 752-7040.

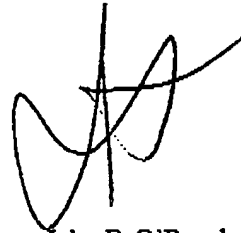
Certificate of Transmission

I hereby certify that this correspondence is being facsimile transmitted to the Commissioner for Patents, Fax No. 571-273-8300 on the date stated below.


Tina Kavanaugh

September 28, 2006

Respectfully submitted,



John F. O'Rourke
Attorney for Applicants
Reg. No. 38,985

RECEIVED
CENTRAL FAX CENTER

SEP 28 2006

LAW OFFICES OF
MACPHERSON KWOK
CHEN & HED LLP

2402 Michelson Drive
SUITE 210
Irvine, CA 92612
(949) 752-7040
FAX (949) 752-7049